Space Weather Forecast

Issued on Wednesday 26 March 2025 at 12:04 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor geomagnetic storms likely, chance of Moderate geomagnetic storms days 1 and 2, reducing thereafter.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity reached Moderate-class due to an isolated low level Moderate-flare from a small but slowly growing bipolar region in the northeast at 26/0809 UTC. There are currently four sunspot regions on the Earth-facing disc, all of which are small and magnetically simple. The region mentioned above is now the most significant of those clearly visible on the Earth facing disc.

No clear Earth-directed coronal mass ejections were observed, though an eruption on the morning on 25th may give a slight chance of a glance on day 4 (29 Mar), though this is low confidence.

Solar Wind / Geomagnetic Activity: Solar wind parameters were indicative of background conditions with a slight recent increase perhaps the early signs of connection to the large coronal hole. Speeds were generally slow-ambient but have increased a little in recent hours to slightly elevated levels. The Interplanetary Magnetic Field was mostly moderate before becoming strong after 25/2355UTC. The north-south component was weak and became persistently negative (southward) after 25/1515UTC. At around 26/0112 UTC, it switched to positive (northward) and was weak to moderate in strength, before then becoming much more variable after 26/0730 UTC, and moderate to strong. Geomagnetic activity was at Quiet to Active levels (Kp 2-4), with BGS recording a G1/Minor Storm interval 26/0000-0300 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Generally Low activity is expected, with a slight chance of further isolated M-class flares.

Solar Wind / Geomagnetic Activity: No clear Earth-directed coronal mass ejections feature in the forecast, though an eruption on 25th may give a slight chance of a glance on day 4 (29 Mar), although this is low confidence.

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Solar winds are expected to rise, gradually increasing to become slightly elevated to elevated day 1 (26 Mar), perhaps becoming strong by day 2 (27 Mar) with the expected arrival of a fast stream of solar wind from an unusually prominent coronal hole feature. The enhanced geomagnetic activity is likely to persist into day 3 (28 Mar), before beginning to gradually ease by day 4 (29 Mar).

Unsettled to Active conditions initially will likely become G1/Minor storm (Kp5), with a chance of G2/Moderate storms (Kp6) due to coronal hole influences, peaking day 1 or day 2 (26/27 Mar) before easing later day 3 into day 4 (28/29 Mar), becoming generally Quiet to Unsettled (Kp1-3) by the end of the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background levels, with a slight chance of enhancement from any larger flares.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	70	60	40	20
Strong	G3	No	15	10	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	20	15	15	15
Very Active	R3-R5 (X Class)	No	1	1	1	1

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Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	5	5	1	1
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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